indicator groups. After synthesis, the interaction of the receptor with the analyte may induce changes in the spectroscopic properties of the molecule. Typically, hydrogen bonding or ionic substituents on the fluorescent monomer involved in analyte binding have the capacity to change the electron density and/or rigidity of the fluorescent ring system, thereby causing observable changes in the spectroscopic properties of the indicator. For fluorescent indicators such changes may be exhibited as changes in the fluorescence quantum yield, maximum excitation wavelength, and/or maximum emission wavelength. This approach does not require the dissociation of a preloaded fluorescent ligand, which may be limited in response time by $k_{(off)}$. While fluorescent ligands are shown here, it is to be understood that a variety of other ligands may be used including colorimetric ligands.

In the Claims:

Please cancel claims 37-38, 69, 115, 135, and 136 without prejudice.

Below is a clean copy of the amended claims. A "strikethrough" version of the amended claims is attached at the end of the response.

1.(amended) A system for detecting an analyte in a fluid comprising:

a light source;

a sensor array, the sensor array comprising a supporting member comprising a plurality of cavities formed within the supporting member;

a plurality of particles, the particles being positioned within the cavities, wherein the particles produce a signal when the particles interact with the analyte during use;

a detector, wherein the detector detects the signal produced by the interaction of the analyte with the particle during use;

wherein the light source and detector are positioned such that light passes from the light source, to the particles, and onto the detector during use, and wherein the light source provides an area of light on an upper surface of the sensor array during use, wherein the area of light encompasses two or more cavities.

6.(amended) The system of claim 1, wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is positioned below a bottom surface of the supporting member, and wherein the top cover layer is positioned above the upper surface of the supporting member, and wherein the bottom layer and the top cover layer are positioned such that the particle is contained within the cavity by the bottom layer and the top cover layer.

7.(amended) The system of claim 6, wherein the bottom layer and the top cover layer are transparent to at least a spectral portion of the light produced by the light source.

8.(amended) The system of claim 1, wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is coupled to a bottom surface of the supporting member, and wherein the top cover layer is coupled to a top surface of the supporting member; and wherein both the bottom layer and the top cover layer are coupled to the supporting member such that the particle is contained within the cavity by bottom layer and the top cover layer.

9. (amended) The system of claim 8, wherein the bottom layer and the top cover layer are transparent to at least a spectral portion of the light produced by the light source.

12. (amended) The system of claim 1, wherein the supporting member is formed from a plastic material, and wherein the sensor array further comprises a top cover layer, the top cover layer being coupled to the supporting member such that the particle is contained within the cavity, and wherein the top cover layer allows the fluid to pass through the top cover layer to the particle, and wherein both the supporting member and the top cover layer are transparent to light produced by the light source.

17. (amended) The system of claim 1, wherein the detector comprises a photodetector, and wherein the detector is coupled to the sensor array.

29. (amended) The system of claim 23, wherein the particles further comprises an indicator, wherein the indicator is coupled to the receptor such that in the presence of the analyte the indicator is displaced from the receptor to produce the signal.

40. (Amended) A system for detecting an analyte in a fluid comprising:

a light source;

a sensor array, the sensor array comprising a supporting member comprising a plurality of cavities formed within the supporting member, wherein the supporting member comprises silicon;

a plurality of particles, the particles comprising a receptor molecule covalently linked to a polymeric resin, wherein the particles are positioned within the cavities, and wherein each of the particles produces a signal when the particle interacts with the analyte during use; and

a detector wherein the detector detects the signal produced by the interaction of the analyte with the particle during use:

wherein the light source and detector are positioned such that light passes from the light source, to the particle, and onto the detector during use, and wherein the light source provides an area of light on an upper surface of the sensor array during use, wherein the area of light encompasses two or more cavities.

41. (Amended) The system of claim 40, wherein the system is configured to simultaneously detect a plurality of analytes in the fluid.

42. (Amended) The system of claim 40, wherein each cavity holds a single particle.

43. (Amended) The system of claim 40, wherein each cavity holds a plurality of particles.

44. (Amended) The system of claim 40, wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is positioned below a bottom surface of the supporting member, and wherein the top cover layer is positioned above the upper surface of the supporting member, and wherein the bottom layer and the top cover layer are positioned such that the particle is contained within the cavity by the bottom layer and the top cover layer.

45. (Amended) The system of claim 44, wherein the bottom layer and the top cover layer are transparent to light produced by the light source.

46. (Amended) The system of claim 40, wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is coupled to a bottom surface of the

supporting member, and wherein the top cover layer is coupled to a top surface of the supporting member; and wherein both the bottom layer and the top cover layer are coupled to the supporting member such that the particle is contained within the cavity by bottom layer and the top cover layer.

47. (Amended) The system of claim 46, wherein the bottom layer and the top cover layer are transparent to light produced by the light source.

60. (Amended) The system of claim 40, wherein the particles further comprises an indicator, wherein the indicator is coupled with the receptor such that in the presence of the analyte the indicator is displaced from the receptor to produce the signal.

Please add the following claims:

173. (new) The system of claim 1, wherein the flood light source and the detector are on a single optical axis.

174. (new) The system of claim 1, wherein the supporting member comprises silicon, and wherein the particle comprises a receptor molecule coupled to a polymeric resin.

175. (new) The system of claim 40, wherein the light source and the detector are on a single optical axis.